FIG. 1

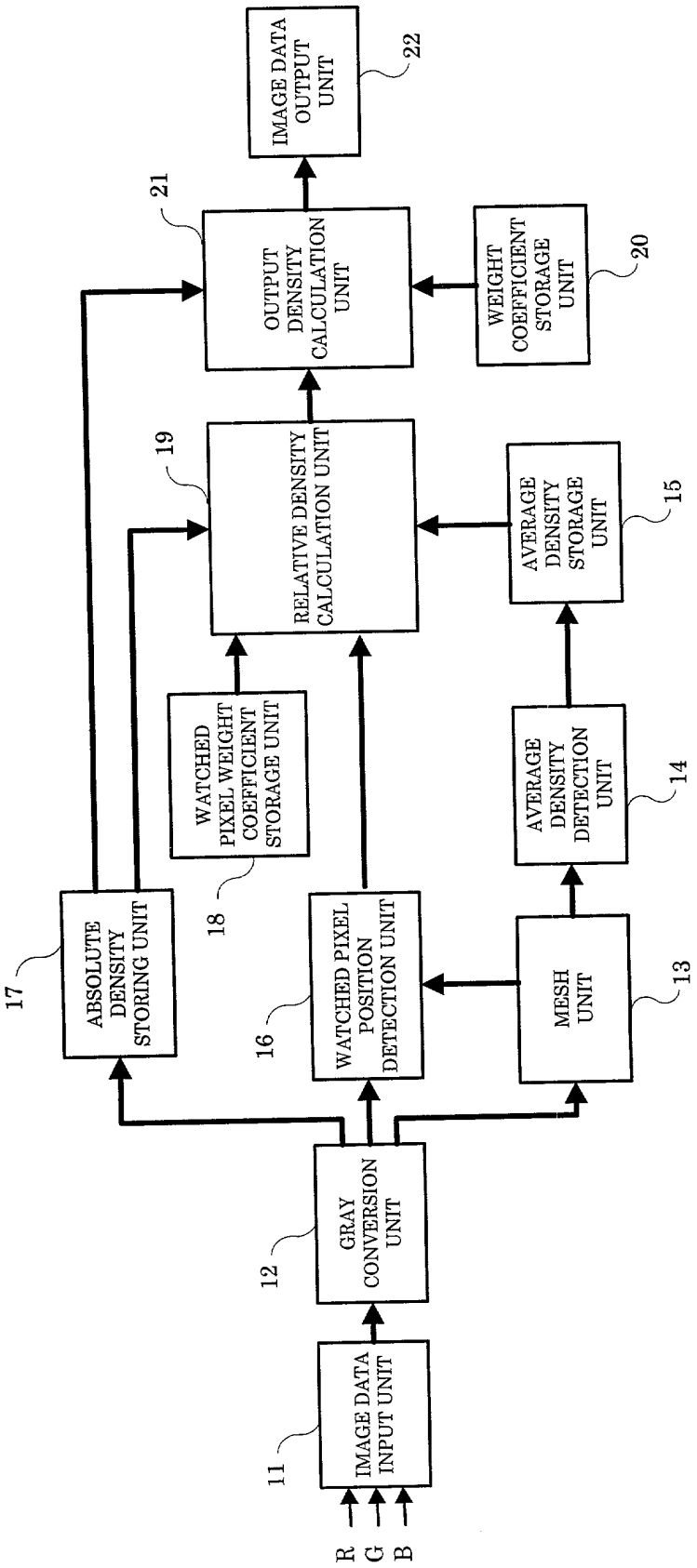
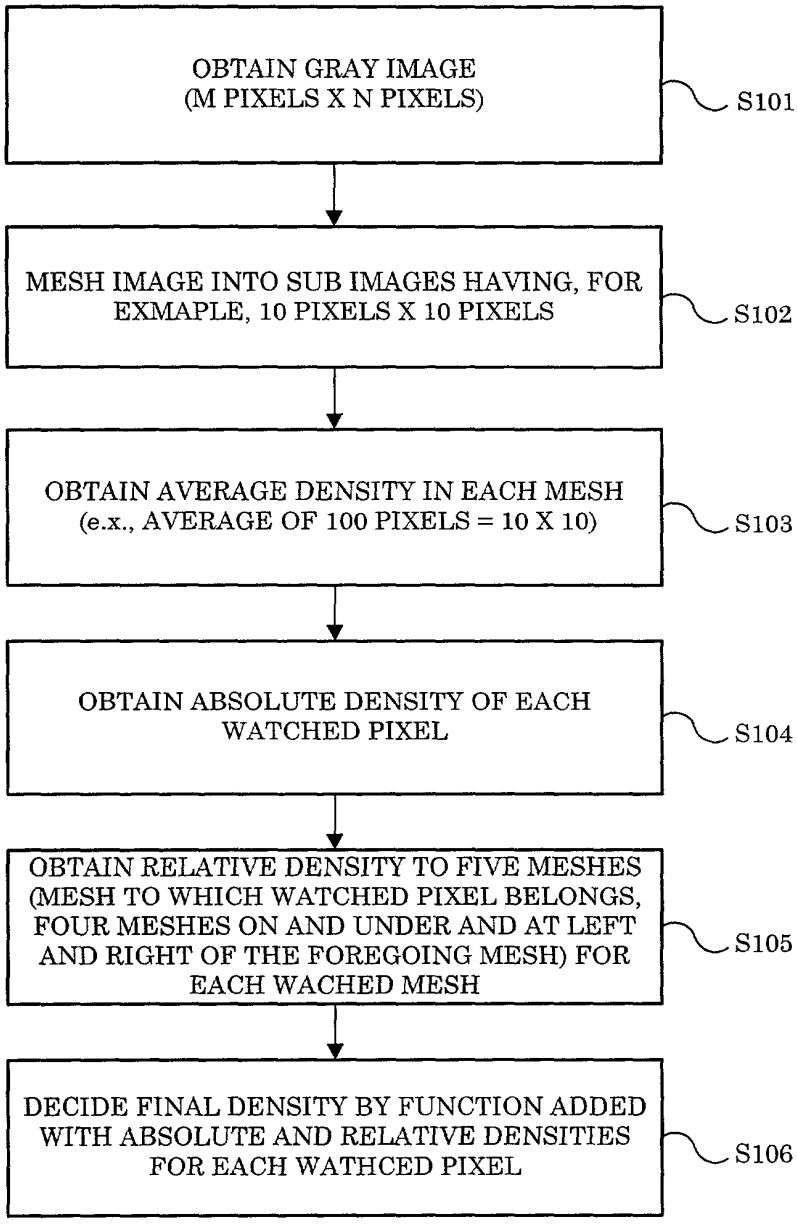
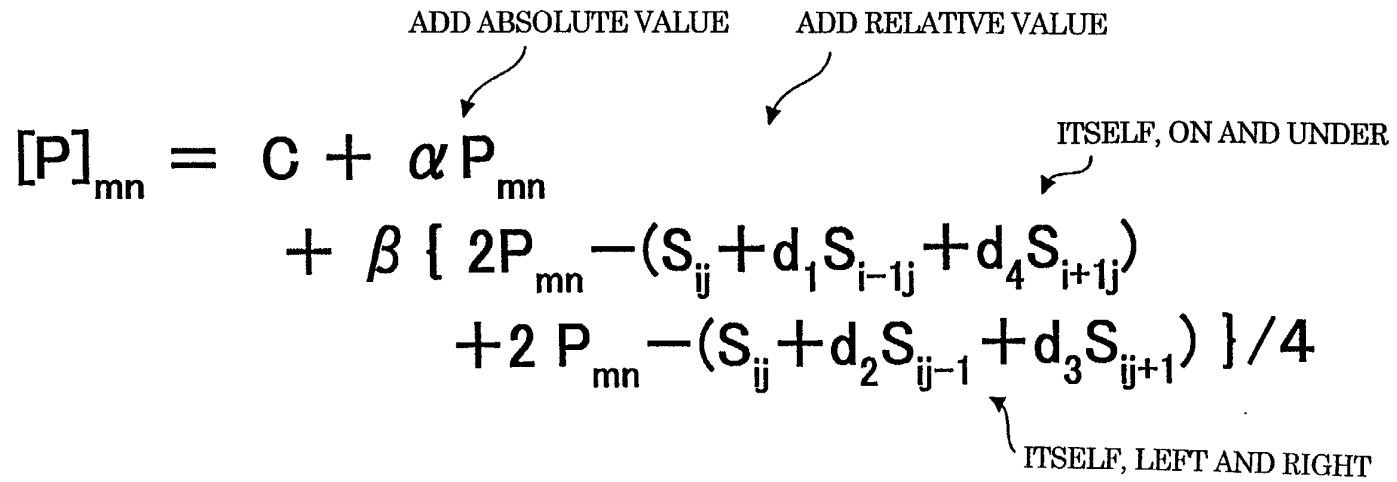

R
G
B
11
IMAGE DATA INPUT UNIT
12
GRAY CONVERSION UNIT
13
MESH UNIT
14
AVERAGE DENSITY DETECTION UNIT
15
AVERAGE DENSITY STORAGE UNIT
16
WATCHED PIXEL POSITION DETECTION UNIT
17
ABSOLUTE DENSITY STORING UNIT
18
WATCHED PIXEL WEIGHT COEFFICIENT STORAGE UNIT
19
RELATIVE DENSITY CALCULATION UNIT
20
WEIGHT COEFFICIENT STORAGE UNIT
21
OUTPUT DENSITY CALCULATION UNIT
22
IMAGE DATA OUTPUT UNIT

FIG. 2


OBTAIN GRAY IMAGE
(M PIXELS X N PIXELS)
S101
MESH IMAGE INTO SUB IMAGES HAVING, FOR EXMAPLE, 10 PIXELS X 10 PIXELS
S102
OBTAIN AVERAGE DENSITY IN EACH MESH
(e.x., AVERAGE OF 100 PIXELS = 10 X 10)
S103
OBTAIN ABSOLUTE DENSITY OF EACH WATCHED PIXEL
S104
OBTAIN RELATIVE DENSITY TO FIVE MESHES (MESH TO WHICH WATCHED PIXEL BELONGS, FOUR MESHES ON AND UNDER AND AT LEFT AND RIGHT OF THE FOREGOING MESH) FOR EACH WACHED MESH
S105
DECIDE FINAL DENSITY BY FUNCTION ADDED WITH ABSOLUTE AND RELATIVE DENSITIES FOR EACH WATHCED PIXEL
S106

TOSEKO 2E6Th360



[P]mn: FINAL VALUE OF PIXEL IN m-TH COLUMN AND n-TH ROW

Pmn: VALUE (ABSOLUTE VALUE) OF PIXEL IN m-TH COLUMN AND n-TH ROW

C: CONSTANT

S_{ij}: AVERAGE DENSITY OF MESH IN i-TH COLUMN AND j-TH ROW

α: WEIGHT COEFFICIENT OF ABSOLUTE VALUE

β: WEIGHT COEFFICIENT OF RELATIVE VALUE

d_1: WEIGHT COEFFICIENT OF MESH ON MESH TO WHICH WATCHED PIXEL BELONGS

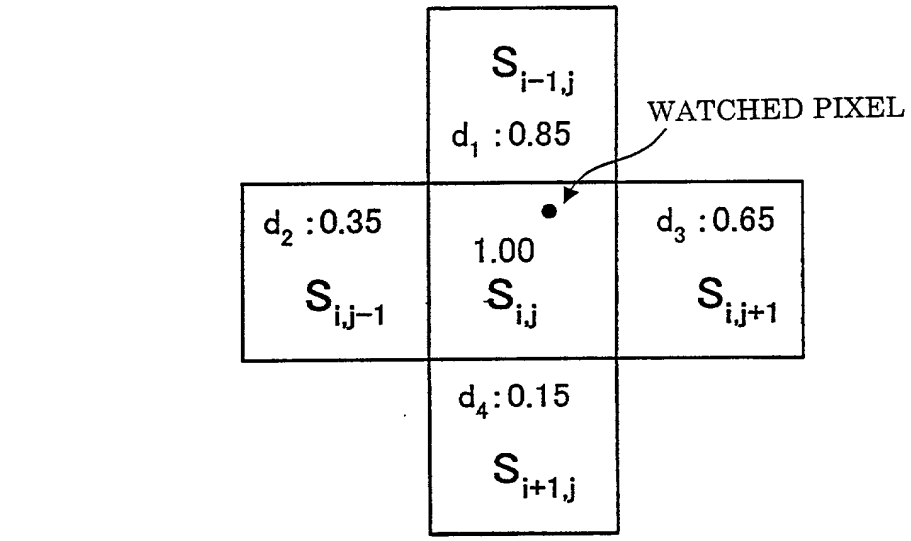
d_2: WEIGHT COEFFICIENT OF MESH AT LEFT OF MESH TO WHICH WATCHED PIXEL BELONGS

d_3: WEIGHT COEFFICIENT OF MESH AT RIGHT OF MESH TO WHICH WATCHED PIXEL BELONGS

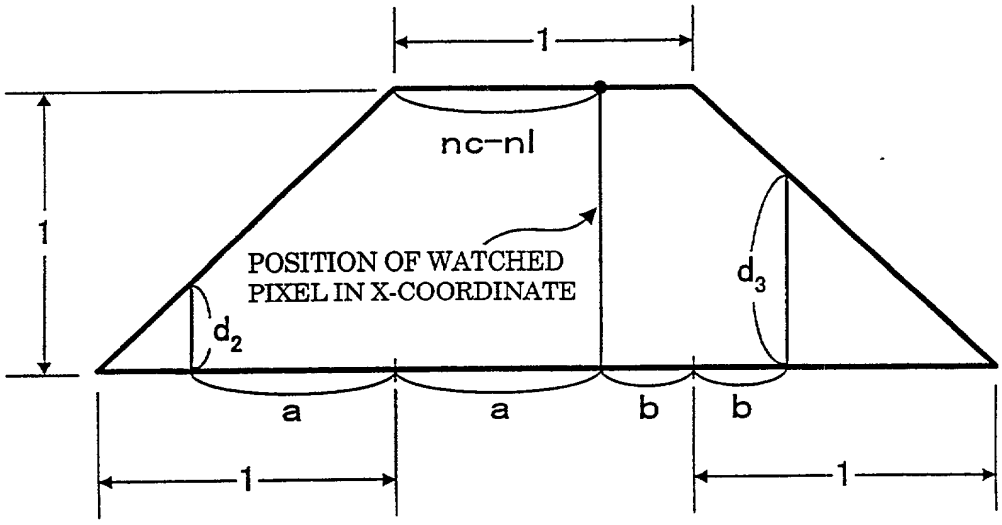
d_4: WEIGHT COEFFICIENT OF MESH UNDER MESH TO WHICH WATCHED PIXEL BELONGS

FIG. 3

FIG. 4


$S_{i-1,j}$
d_1 : 0.85
WATCHED PIXEL
d_2 : 0.35
1.00
d_3 : 0.65
$S_{i,j-1}$
$S_{i,j}$
$S_{i,j+1}$
d_4 : 0.15
$S_{i+1,j}$

(a)


1
nc−nl
1
POSITION OF WATCHED PIXEL IN X-COORDINATE
d_3
d_2
a
a
b
b
1
1

(b)

FIG. 5

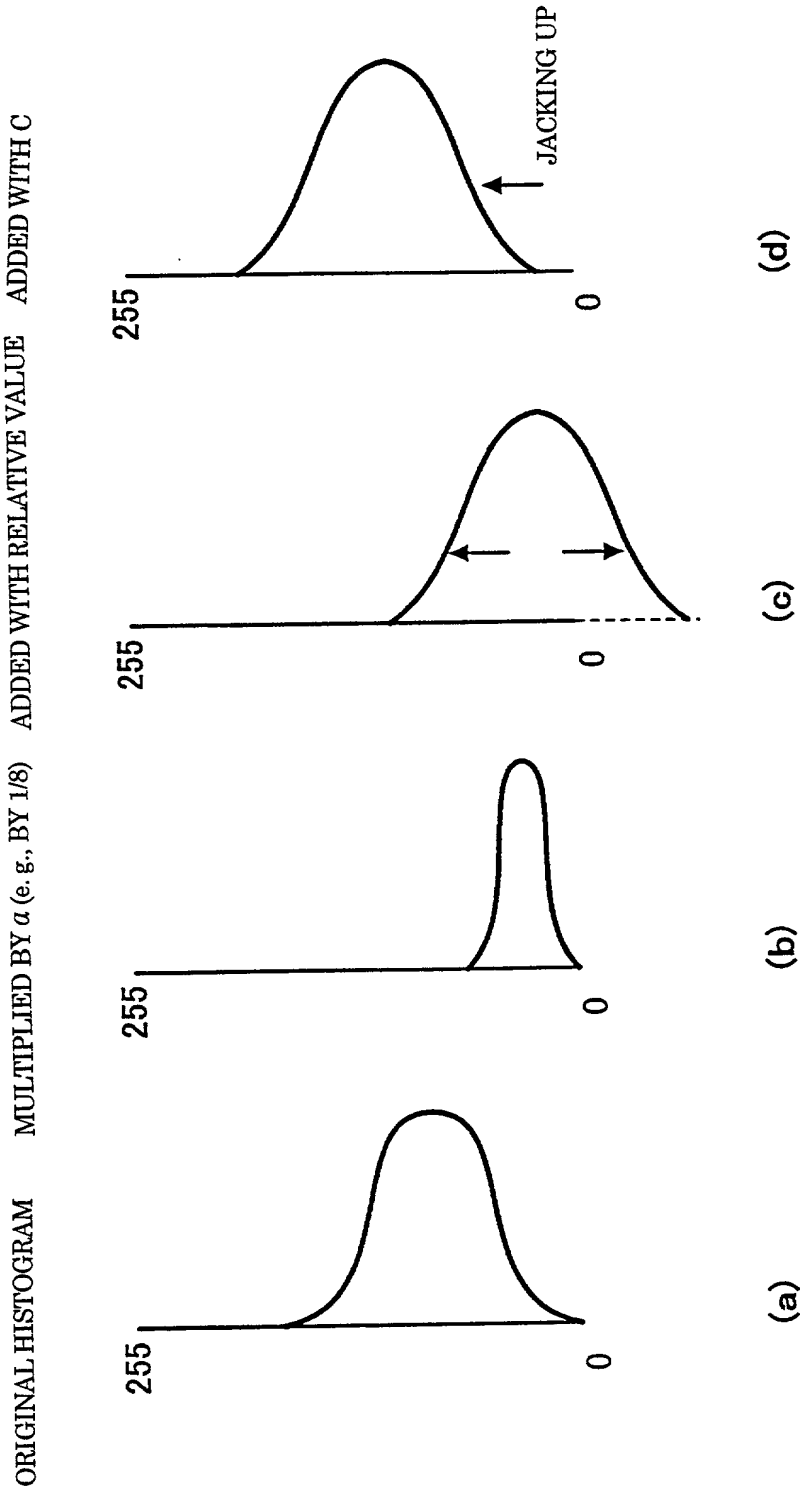
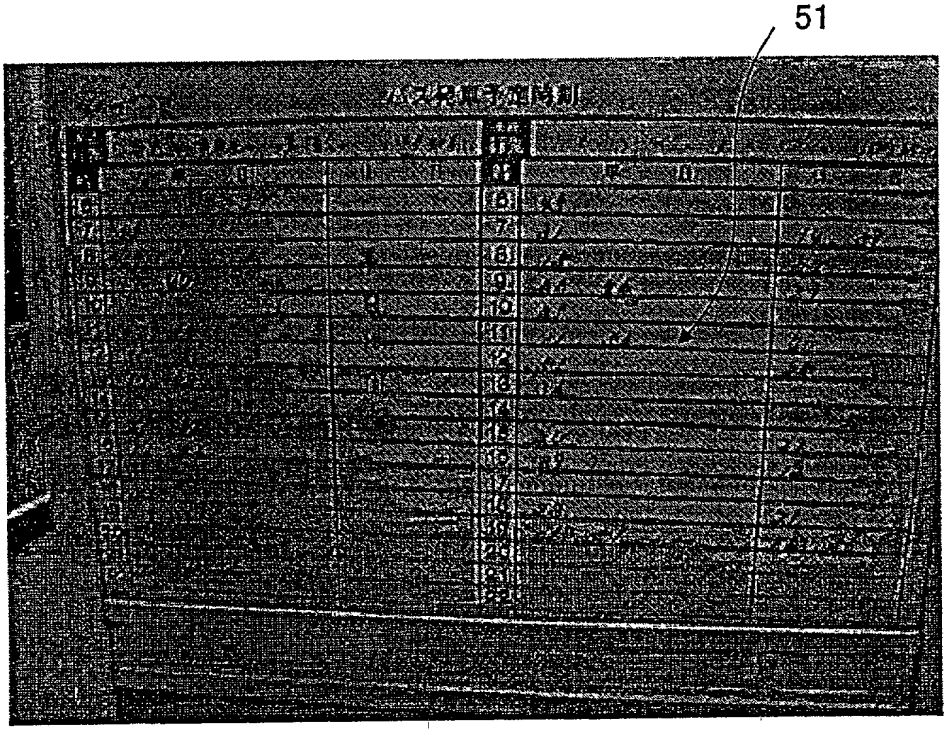
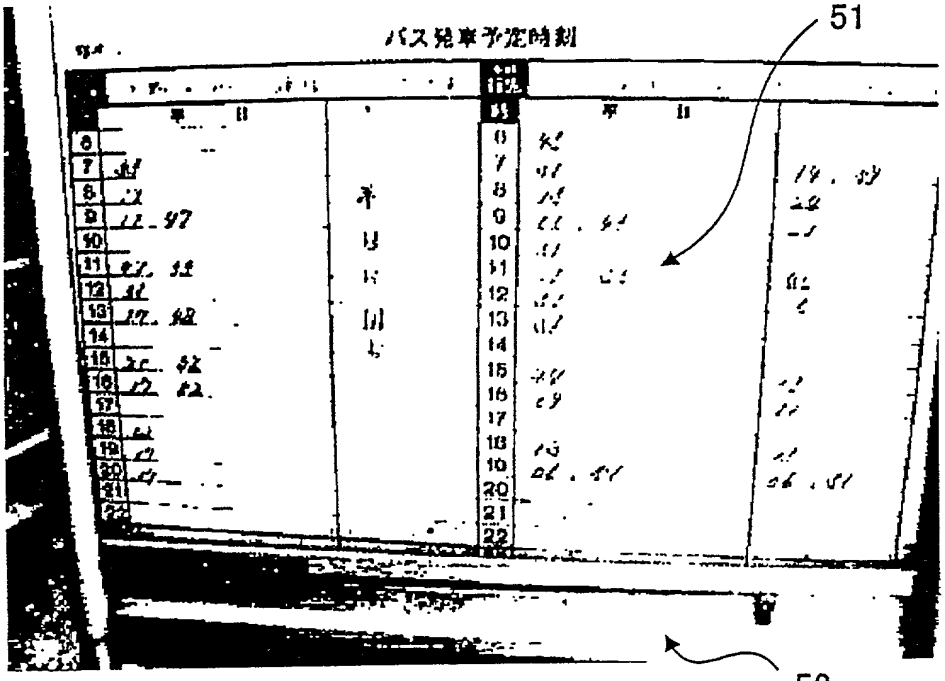

ORIGINAL HISTOGRAM
MULTIPLIED BY α (e. g., BY 1/8)
ADDED WITH RELATIVE VALUE
ADDED WITH C
JACKING UP
255
0
(a)
(b)
(c)
(d)

FIG. 6

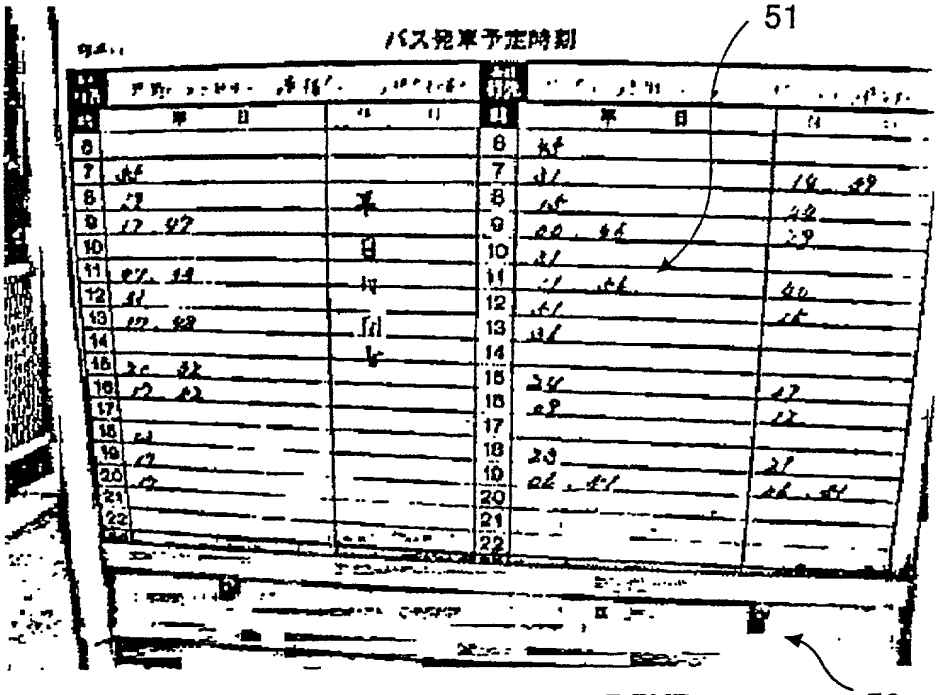


(a) 51.5KB

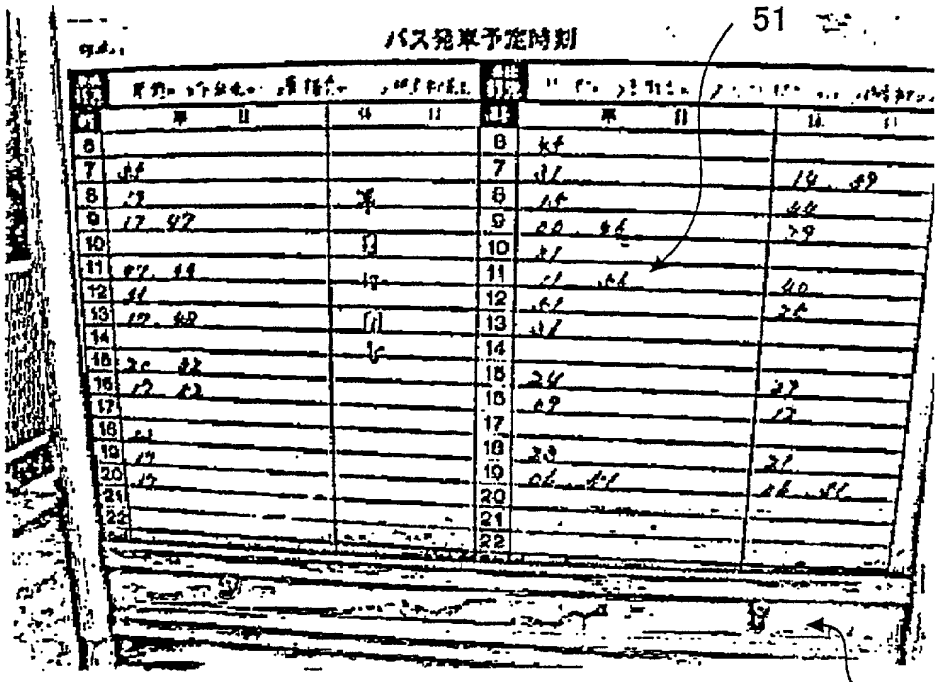


(b) 5.0KB

FIG. 7

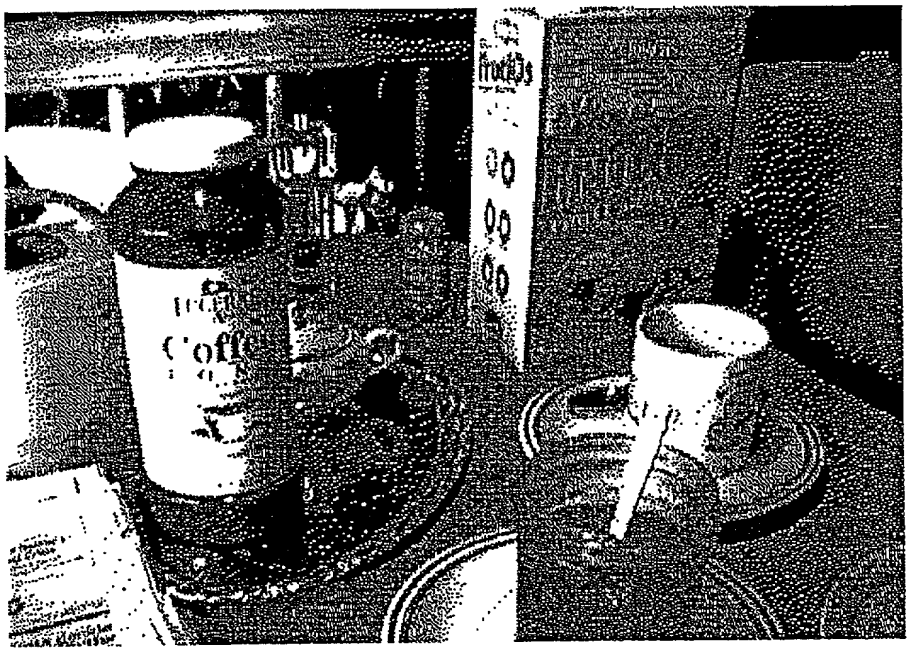


(a) 7.7KB



(b) 9.7KB

FIG. 8



(a) 62.0KB

(b) 5.7KB

FIG. 9

15.0KB

Document: 2004/0153502 - 04/05/2004